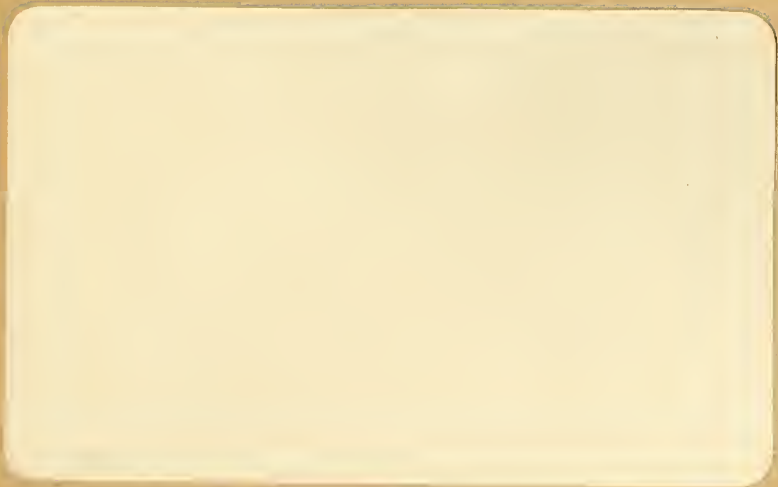


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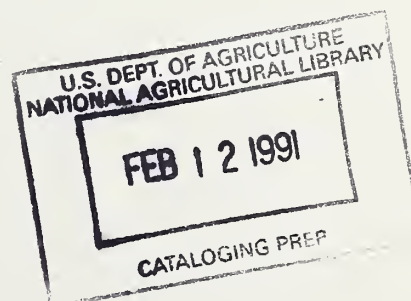
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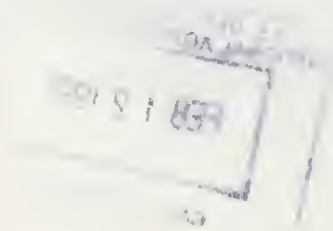
BANDUNDU CONSUMPTION SURVEY

Implementing Institution,
Proposed Objectives and Work Plan

June 28, 1986
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ACRONYMS

| | |
|----------|---|
| BFA | - Bureau de Planification Agricole under DSPPA. |
| CEPLANUT | - Centre National de Planification de la Nutrition Humaine |
| CODAIK | - Compagnie pour le Developpement Agricole Integre de Kwangu-Kwilu. |
| CRENB | - Conseil Regional d'Alimentation et de Nutrition pour la Region de Bandundu. |
| DADR | - Departement de l'Agriculture et de Developpement Rural |
| DMPCC | - Direction des Marches, Prix et Credit de Campagne of DADR. |
| DSA | - Division de Statistiques Agricoles under SEP. |
| DSPPA | - Division de Strategie, Planification et Projets Agricoles under SEP. |
| FAO | - Food and Agriculture Organization of the United Nations. |
| FSSP | - Farming Systems Support Project. |
| IBRD | - International Bank for Reconstruction and Development |
| INS | - Institut Nationoanle des Statistiques |
| IRES | - Institute de Recherches Economiques et Sociales |
| SEP | - Service d'Etudes et de Planification of DADR |
| USDA | - United States Department of Agriculture. |

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I. INTRODUCTION

In mid 1985, the USAID mission to Zaire requested assistance from the Nutrition Economics Group of the United States Department of Agriculture for planning and executing a food consumption/household budget survey. The survey is to cover the area of Bandundu Region included in the Area Production and Marketing Project, also known as Project 102. This report discusses the capacity of several Zairean institutions to carry out such a study. It reviews feasible objectives for the study given both institutional limitations and the needs of Project 102 for baseline data. It then identifies an appropriate sample frame; proposes a multistage, stratified sampling procedure; discusses important questionnaire design issues; outlines data analysis procedures; and, provides a detailed work plan and budget for the study.

The 102 project area includes 16 of the 115 collectivities in Bandundu Region of the Republic of Zaire. These 16 collectivities fall across eight different administrative zones in the Kwilu and Mai-Ndombe sub-regions of Bandundu Region. The phasing of implementation calls for the project to begin activities in only one or two collectivities during the first year, expanding the number by approximately two per year during each subsequent year of project execution. The project has a ten year life. With this pace of implementation, by the time the technical assistance team gets into the field there should be just enough time to get at least some activities underway in each collectivity before the project ends in 1995.

II. LOCAL INSTITUTIONAL CAPACITY FOR DATA COLLECTION AND ANALYSIS

Identifying a national institution for carrying out the kind of survey recommended for the project is not a simple question of

new studies. An individual donor may not know or, in its urgency to meet project implementation schedules, may not care that initiating a new survey will delay completion of other studies already underway.

It has become acceptable practice in Zaire to pay substantial salary supplements to get national personnel to work on priority projects. This process has carried so far that many GOZ employees view their national salary as a retainer for their services. If you want work, you must pay more. Donors not only accept this system, they aggravate it as they bid up salary supplements to draw the best personnel to their projects. At the same time, USAID has followed a policy of applying salary supplements across-the-board rather than using them as performance incentives. As a result, all the supplements have done is to raise the cost structure of government employment without improving performance. The very high supplements currently being paid will increase substantially the cost of the consumption survey.

For this study we have examined four institutions willing to provide data collection services for the Project 102 consumption survey. These include the National Institute of Statistics, the Institute of Economic and Social Research, the Division of Agricultural Statistics of the Department of Agriculture and Rural Development, and the National Center For Human Nutrition Planning. Project 102, as yet, has no staff or facilities on the ground so it will not be in a position to carry out surveys until well into 1987.

II.A. The National Institute of Statistics

The Institut National de Statistiques (INS) has responsibility for preparing data for the national accounts, for conducting the population census and for maintaining consumer price indices. At the present time the INS is conducting a household budget survey of Kinshasa and Regional towns. USAID is financing the Kinshasa portion of the survey through the use of counterpart funds allocated to the Departement D'Etat du Plan, the parent

Perhaps the biggest negative in using the INS is its tendency to approach surveys in sequential rather than in simultaneous or in fully preplanned fashion. This will lengthen the time from data collection to publication of the 102 study by a year or more. Rather than add to an already difficult task of getting back to previous levels of operating efficiency, USAID would be better advised to look elsewhere for an executing organization.

II.B. The Institute For Social And Economic Research

Holtzman briefly analysed the potential for using the Institut de Recherches Economiques et Sociales (IRES) to generate and analyze data for monitoring and evaluation activities relating to projects 102 and 098. He found little evidence of experience with rural surveys. Like the INS, IRES no longer has access to an operating computer system. Should the project finance computers for the study, Holtzman expresses concern that the projects would have difficulty keeping competing demands for computer services at the university from interfering with project needs. Moreover, IRES has tended to assign responsibility for fieldwork for its surveys to unexperienced junior researchers. If there is one thing 102 doesn't need its another first-time survey. There is also the problem of the competing demands that teaching and other university responsibilities place on the time of senior faculty members. Such responsibilities often cause inordinate delays in the analysis of survey data.

Other persons familiar with IRES disagree with some of Holtzman's conclusions. They point out that an average teaching load requires only four months presence on campus in a single year. Moreover, IRES is an autonomous structure within the university so the problem of competition with the university for available computer resources does not arise. IRES also has some top flight researchers. As always, however, the major question is whether the intended survey can get much of their attention.

II.C. The Division Of Agricultural Statistics

Perhaps the most logical choice for a data collection and analysis institution is the Division de Statistiques Agricole

had inadequate resources to supervise the field work. The ratio of enumerators to supervisor was 11:1 in Bulungu rather than 4:1. It was quite apparant that neither one spent much time in the field and it would take something short of a miracle to get them there.

When asked about difficulties DSA was having in completing surveys, Mr. Babilliot replied that he was not aware of a major backlog in tabulating or reporting. The division decided to not tabulate one survey that was poorly designed, but as far as he was aware, DSA would have excess capacity later in the year when Project 102 would want to initiate its consumption survey. He indicated that the development program for the Division called for a consumption survey to validate the results of a production survey now underway in Bandundu Region. For this reason the Division would be very interested in collaborating with USAID on this survey.

It is not entirely clear that DSA has the excess capacity being attributed to it. According to the INS, the Service des Etudes et de Planification (SEP) has agreed to process data for the urban household budget survey being conducted by INS. The director of DSA has confirmed this. However, according to the Director of SEP, the parent service of DSA, this is not true. Whatever the situation, this survey will generate approximately 50 million characters of data and would place a major strain on the Division of Statistics.

At the present time the DSA data entry unit averages between 2000 and 3500 characters per hour and fewer than 10 hours per week per operator. It has four Apple IIe microcomputers that are available for full time data entry. Even if operating efficiency could be raised to 5000 characters per hour for five hours per day--requiring a change in operating management to accomplish--it would take the four machines 500 working days or 2 1/2 years to enter the data. Only if operating rates could be raised to 30,000 characters per day--still less than one-half the average output of operators in the U.S.--for two shifts per day, could

not have sufficient vehicles for conducting the survey, however, and would need other operating support and equipment which the Division of Agricultural Statistics already has. CEPLANUT will also need more technical assistance with data tabulation and analysis than would be necessary at DSA because the DSA already benefits from the presence of USAID technical assistance under Project 070 and its successor.

Apparantly CEPLANUT can anticipate dollar funding from USAID for only another couple of years. This creates an incentive for CEPLANUT to establish a reputation for running effective surveys. The IBRD CODIAK II Project would almost certainly utilize such a capacity if it existed. CEPLANUT could become a major collector and repository of information for Bandundu Region and for all USAID projects in the area.

The situation at CEPLANUT is not all peaches and cream. The list of potential collaborators from its staff proposed for the study indicates an orientation toward the mechanics of data collection rather than toward the management of such a large survey or the conceptual depth needed to obtain valid results. CEPLANUT has such people on its staff. It is not clear, however, that it sees their proper role as one of providing the drive and initiative for insuring that the correct data is properly collected. If Project 102 decides to use CEPLANUT for the survry, it will need to explicitly require that it be placed under the direction of someone of sufficient stature who can make the heavy time committment that conducting a good survey will require.

III. OTHER CONSIDERATIONS FOR IMPLEMENTING A CONSUMPTION SURVEY IN BANDUNDU

The institutional context in which even a well disciplined national organization would have to operate a survey in Zaire is not conducive to maintaining the work discipline necessary to obtain good quality data. Government officials in virtually all services put in relatively few hours on the job. To the extent that a survey operation depends on public officials for such things as obtaining lists of villages or contacting village

checked by them, being careful to cover at least some households done by each enumerator. All such checks should be spontaneous and unannounced, except for informing the village chief what is occurring. A project technical assistant should monitor the survey and provide enough on-site supervision to ensure the integrity of the data being collected.

Whatever institution it chooses for implementing the study, the mission should insist on a more effective organization of surveys than that which has prevailed in the past. Data entry should begin as soon as questionnaires begin arriving from the field, within a month or so of the start of actual collection of data. Data entry, editing and tabulation programs should be written as soon as questionnaire design reaches the pretesting stage. Analysis programs should be written even sooner, as soon as the principal researchers finalize the information they need and the tables and techniques they expect to use to analyze the data. Beginning a survey for whatever reason without first making such preparations amounts to little more than an expensive fishing expedition with a high probability that key pieces of information will not be collected in the necessary detail, or worse yet, will not be collected at all.

Adequate preparation is the key to the rapid turn around of data collected in surveys. The importance of this should not be lost in the rush to meet project implementation deadlines or to catch important seasonal factors. In most cases, researchers will be able to publish better results more quickly by waiting for the next season and, in the mean time, completing preparations rather than hastily rushing into the field to collect data. With adequate preparation, preliminary tabulations could be available within two months of the completion of field work and a final report within four months. This is by no means an unreasonable objective.

As a matter of policy, USAID should not agree to finance any survey where data entry does not begin in earnest within 30 days after the beginning of data collection. All preparations necessa-

2. Village profiles for 20% of all villages in Bandundu Region (DSA).

3. Agricultural production and area in specific crops in Bandundu Region (DSA). This does not appear to be a very serious operation. In addition, appendices to the Project Paper include consultant reports on farming practices (Fiebig), soils (Leong) and agricultural marketing (Holtzman).

These studies reveal a subsistence oriented, cassava and maize based farming system with contrasting pockets of food surplus and food deficits. About 40% of all households own either pigs or small ruminants and 10% own cattle. Over half of all households own fish ponds. Somewhere around 30% of cassava, 25% of peanut and 55% of maize production is sold. The rest is retained for household consumption and seed. Peanuts, insects and fish constitute the major sources of protein. About 20% of the under-five population suffers from malnutrition.

IV.A. Implications for the Consumption Survey

Many observers having long experience working in the project area note a tendency of households, in areas where roads are relatively poor, to sell more of their produce than they should, if their families are to be adequately fed. This suggests that project monitoring and evaluation should include the nutritional effects of specific interventions. It would be very helpful to have information on price and expenditure elasticities, as well as on the elasticity of autoconsumption with respect to price, total expenditures and the quantity produced by the household. This would allow the project to anticipate likely nutritional consequences and to alter project direction accordingly. Indeed, one of the key factors affecting the projects' success will be its ability to correctly identify surplus and deficit producing areas ex-ante. Surplus producing areas will need the roads and market infrastructure to be provided by the project. Food deficit areas will need to receive more help with agricultural production and related issues before they are opened up with roads.

larger than that obtained by treating all of the observations as a simple random sample. The exact difference will depend on the variability between first stage units for the characteristic being measured. The effect of the larger standard errors is to reduce the level of confidence with which one may infer that an observed change in mean values over time actually occurred. For example, the change could have resulted simply by sampling different population elements from the same, underlying, unchanged population. In other words, to what extent do the observed results reflect a statistical quirk versus a real change in population values. Only the standard error of the estimate permits this judgment to be made with known precision.

IV.B. Nutritional Status In The 102 Project Area

The CEPLANUT study covered all of Bandundu Region rather than just the 102 project area. Evidence from the survey suggests that under five malnutrition may be more severe in the 102 project area than in Bandundu Region overall. For this reason, the project should immediately commission CEPLANUT to rerun its analysis of the data using only those households which fall in the project area. In spite of the sharply reduced number of observations, it would still be better to maintain the strata employed in the original study since the results show that estimated variance varies by strata. But the reanalysis should report first stage sample means and should calculate the standard error of proportion using those first stage means rather than the individual observations. In fact, it would be helpful to calculate standard errors using both methods in the event that the follow-up study incorrectly uses the simple random sample formula for a multi-stage sample design - a very common error.

With the sharply reduced sample size, the standard error of proportion will increase in magnitude. The mean proportion of malnutrition estimated across the strata means would probably have a 95% confidence interval of 4 percentage points or so around the mean (i.e. $17.3\% \pm 4.0$ for a 95% confidence interval of 13.3-21.3% malnutrition if the same proportion prevails). With a less stringent confidence level of 85%, the range would probably be

use as a baseline measure for evaluating project accomplishments. According to the study for example, 2% of the dwellings in the survey area have tin roofs, 57% have windows and 51% have at least some of the consumer goods for which the study sought information. Because of the items chosen, however, almost half of all sample households fall into a single undifferentiated class with no possessions. Unless subsequent surveys identify and measure a wider array of housing types and consumer goods, possessions will not provide a very useful baseline measure for tracking project impact.

John Belcher (1972) proposes a cross cultural household level-of-living scale based on the technological efficiency with which a household meets each of 12 different essential functions; shelter, storage of water, transportation of water to home, lighting, preservation of perishable food, eating, disposal of human wastes, transportation, cooking, fuel, cleaning and washing dishes. The concept has merit even if Belcher's measures of technological efficiency fail to discriminate well at low levels of living such as those prevailing in the 102 project area. Clearly, one would need to know more about how households in the area are differentiated with respect to these functions in order to design a proper scale. But such things as possession of a lantern, a fuel oil or a palm oil lamp, a reed, wood plank or milled wood door, a completely versus a partially covered roof, a crepiassage versus sticks on exterior walls, type of bed, type of container for storing water, type of container for carrying water, type of latrine, if any, source of fuel for cooking and utensils used for cooking would most likely be key measures.

The pretest of the questionnaire for the food consumption survey should explore these aspects of households for the purpose of constructing a detailed question on level of living. The information obtained should allow the population to be segregated into at least seven more or less equal sized groups representing differing levels of living. This would provide a more sensitive measure of project impact than would the Small Farmer Study Ownership index. Such an index should include possessions as well

It would not seem prudent to exclude them from the baseline measures. Small stock holdings is thus another variable that should be added to the consumption survey in order to complete a modest set of baseline measures.

IV.E. The Immediate Need For Research Coordination

In addition to the CEPLANUT Nutrition Study, the Small Farmer Study, the Farming Systems Study and the Consumption study, Project 102 also intends to finance a baseline survey and marketing studies. There is clearly a great deal of unnecessary overlap between these studies and the overlap is growing by the day. The recent farming systems study, for example, covered much the same ground examined in the Small Farmer Study.

The data collection process for Project 102 has reached the point where coordination of research activities by the Research and Information Division (RID) of the Project Implementation Unit is imperative. Otherwise substantial waste of resources is almost guaranteed. Key methodological shortcomings have compromised the usefulness for project evaluation purposes of much of the data collected thus far. Subsequent surveys are not learning from the mistakes of earlier ones nor are they building on what was learned. Only a strong RID that fully assimilates each study and piece of information as it becomes available can assure that new survey work is consistent with earlier studies and makes the maximum contribution to knowledge of the project area.

V. DEFINING APPROPRIATE SURVEY OBJECTIVES

Defining the objectives for a survey nearly always involves a compromise between what is desirable and what is possible. This is a question of judgment. With my limited experience working in Zaire, the possibility for a serious error of judgment always exists.

All things considered, I question the wisdom of conducting a full-scale household income and expenditure survey. For reasons already discussed, the odds against obtaining good quality data appear to be high. The odds get better if data gathering is

better nutrition status data is needed, CEPLANUT should be asked to run another survey of just the 102 project area.

The consumption survey could identify principal sources and quantities of protein foods, apparently a limiting factor in many diets at certain times of the year. This would not require collection of income, production or price information but it would require that the different seasonal periods of production and consumption be covered in the survey. This can be done by asking respondents what they "normally" consume or to describe "typical" meals at key times of the year. Such techniques have been shown to be quite unreliable in the U.S., but they can give orders of magnitude. *uh*

The Small Farmer Study indicates that the supply of basic goods and services is inadequate in many parts of the project area. This is confirmed by the Farming Systems Study. Items such as soap, salt, lanterns, fuel oil, farm inputs, bicycle parts, matches, cloth and clothing are reported to be poorly supplied. Mechanical milling facilities are almost nonexistent at the village level. Neither study indicates whether such problems stem from lack of effective demand or from inadequate supply per se. The consumption survey should try to shed some light on this. What people do with their cash income might suggest opportunities for the project.

The two broad thrusts that seems useful for a consumption survey, therefore, are a full-scale expenditure survey covering major seasons of production and consumption on the one hand, and a single-visit survey of food consumption, food scarcity, recent expenditures, major purchases and effective demand for goods and services in rural villages on the other. Both approaches should gather data for a level of living index and should try to get good information on small stock holdings.

The two approaches are by no means equal. In an area such as Bandundu there are two different production seasons which must certainly carry over into consumption and expenditure patterns. A

4. To assess the extent of effective demand in villages for selected goods and services not now available.
5. To record seasonal price fluctuations for important locally produced agricultural commodities.
6. To identify opportunities for project interventions relating to expenditure patterns.
7. To estimate small stock and large stock holdings by all members of the population in the survey area.
8. To construct a broadly based level of living indicator that can serve as a benchmark measure of project impact.

These objectives are ambitious, to be sure. But information for all but the last two will flow automatically from any reasonably complete listing of ~~and~~ expenditures. The level of living indicator will provide a basis for validating the expenditure data .

The major work on the objectives will come from the analysis side. More could be added, such as calculating population nutrient adequacy ratio's for calories and protein during the various seasons. The survey will gather enough data to do this. However, the amount of work involved in analyzing the data in this way is considerable. That objective is better left for a subsequent contract with an interested and capable researcher.

VI. SAMPLE FRAME AND SAMPLING PROCEDURES

Zaire's administrative structure provides an excellent frame for drawing multistage, stratified, samples for estimating population related variables. It is possible to get a complete list of total population broken down by village. These figures are updated each year by village chiefs and sent up the administrative ladder. As of the beginning of 1986, the Departement de L'Administration du Territoire at Kinshasa reportedly had the 1984 population by groupements. Each chef de groupement has a list of the villages and their populations. In some cases the village totals are also available at the zonal headquarters but this is not always the case.

presents estimates based on survey results one might expect to find in the 102 project area.

As can be seen from Table 1, required sample size varies according to the variability of the observed value of the variable in the population (standard deviation), the proximity to the actual mean ($\pm 5-10\%$), and the precision one would like to have in actually being that close (90-95% sure). Assuming we are satisfied with estimates that are 90% certain of falling within 10% of the true population mean, we don't need a very large sample size. Using simple random sampling procedures, 300 would suffice for total and food expenditures. If we want to be 95% sure that our estimate falls within 5% of the actual population mean¹, however, we would need a sample size of 5.6 times larger. For variables with greater variability in the population, such as clothing and durables, the required sample size gets quite large.

The numbers in Table 1 need to be adjusted for the fact that our sampling procedure is stratified and multistaged rather than simply random. For 30 first stage units we would expect the clustering effect of the multistage sample to increase required sample size by around 40%. The stratifying effect, on the other hand should reduce it by about 10%. Adding another 20% for attrition, we get a required sample size about 50% larger than the numbers indicated in Table 1. Thus for the higher level of precision we would need a sample of 3300 households for all but housing and for the lower level, a sample of 600. Given the very crude nature of the estimated values for the variables and the desirability of having as much precision as possible for the more disperse distributions, we should probably shoot for a sample size of around 720 stratified into two income groups. This would give eight households for each of the 90 first stage sample units.

The actual sampling procedure should proceed with sampling probabilities proportional to size at all stages except the last. To get a good distribution of first stage units over the project area while keeping logistical problems to a minimum, I would

¹THIS IS THE level of precision conventionally sought from sample surveys.

recommend listing all the groupements within a strata by moving from west to east in serpentine, north/south fashion. Then, prepare a cumulative population listing and draw a systematic sample of 30 groupements within each stratum. List and draw a village within each selected groupement in the same way.

Because higher income households often have expenditure patterns that differ substantially from the rest of the population, it is usually statistically useful to stratify sample households by income group for expenditure surveys. In our brief field trip we observed only two relatively clearly defined income groups. The higher income group consists of many village chiefs, merchants and salaried employees. Farmers and wage earners make up the other. Although this will need to be determined more precisely in the pretest, it appears that possession of a tin roof or paint on the outer walls of the principal dwelling, or a motor bike or car would identify a sub-set of about 10% of the population with markedly higher incomes. (All of these characteristics would be readily observable by enumerators without asking the household members). Treating this sub-set as a separate stratum should improve considerably the efficiency of estimates derived from the total sample size of 720 consumption units. This can be accomplished by drawing one or, if available, two households in each selected second stage unit (village) from this stratum.

VII. DATA COLLECTION PROCEDURES

The actual data collection methodology should follow that described in the NEG report on "Rapid Appraisal Techniques for Collecting Food Expenditure and Consumption Data". This document will be available shortly. In brief, this methodology involves a single visit to each household during each of the seasonal extremes of availability of food and revenue. In the context of Zaire, this means four visits: one between mid-August and mid-November and one during each subsequent quarter. These correspond roughly to the principal season of scarcity, the principal season of plenty, the secondary season of scarcity and the secondary season of plenty, respectively. Consumption patterns

Information on expenditures will cover three periods: a normal local market cycle, including a market day, for frequent expenditures; a 30 day period for all expenditures occurring more than twice over the past 90 days, and a 90 day period for all expenditures occurring less than three times over the past 90 days. The commodities covered in the local market cycle will be fixed for each household. Those covered by the 30 and 90 day recall will vary according to the expenditure patterns of the households. They will include only bulk purchases of commodities covered in the market cycle listing. A separate variable will register the recall period used for each such commodity and the extrapolation weights will vary accordingly. In no case will the market cycle include less than seven days. It will always include one and only one market day per cycle.

Expenditures from own production will be recorded by means of a 48 hour recall of food prepared for the consumption unit. This will probably not provide a very reliable means for an individual household but it should be reliable on a sample basis for groups of homogeneous households. The 48 hour recall will provide a check on the expenditure data and on the production and sale data for specific crops. Consumption from own production will thus be rewarded directly and not as a residual after deducting sales and gifts from own production. In analyzing the survey results researchers should note anomalies between the three sets of data and explain what they might mean. But they should not assign the residual to any class of disposition without clearly noting what they are doing and why.

With the above methodology, lumpy expenditures such as school fees, funeral and ceremonial expenses will not get overweighted in the extrapolated totals. Consumption from own production will be estimated directly. The separate monthly and quarterly estimates for individual households will facilitate the analysis of seasonal patterns of income, expenditures and consumption. At the same time, the sum of the quarterly totals will provide annual totals for the households. Once data collection starts in earnest, a short-term consultant and/or the project's Research and

IX. DATA TABULATION AND ANALYSIS

NEG is attempting to develop a standardized methodology for rapidly collecting and reporting consumption and expenditure data. To accomplish this, it recognizes the need to focus on, and evolve with, a single hardware/software configuration for data entry, editing, tabulation and preliminary analysis. At the present time, there is no clear leader for this honor.

A suitable software package should be available in French or easily adapted to French applications. D-Base-III is adaptable while R-Base 5000 is available in French. R-Base 5000 can handle longer records than D-Base (400 fields versus 128) and allows for range checking on data entry without additional programming. For data entry R-Base 5000 is a clear superior choice where users are not already familiar with D-Base. Where they are, it would probably make better sense to stick with D-Base III.

The International Statistics Programs Center (ISPC) of the U.S. Bureau of the Census is in the process of developing versions of its principal main frame programs for use on micro-computers. The CONCOR editing and imputation package and the CENTS 4 Tabulation system are now available for IBM PC, XT, AT and compatibles. Unfortunately, these programs are not available in French and are better suited for demographic data than for consumption and production data.

For tabulation and analysis, SAS and SPSS for micro computers offer viable solutions. Both are widely familiar to researchers and are available with a manual in French. Both also have about all of the tabulation and statistical analysis capabilities that one would need for a consumption survey. Each has a table generating capability that produces final copy tables with minimal input. SPSS will have a fully compatible data entry program available by September of 1986 and SAS will have one in early 1987.

SAS is considerably more expensive than SPSS (\$5000 versus \$2000 for a complete system) and involves an annual charge (\$3500)

Calculating elasticities and doing the consumption analysis is a more sophisticated piece of work. This will almost certainly require outside help. NEG has a pool of consumption economists from which it can draw for this kind of work. Alternatively, the project should explore the qualifications of persons at the University of Kinshasa who might be capable in this area. Before actual data collection begins, whoever will be responsible for this part of the analysis should participate in final decisions concerning data collection methodology. The mission, the project and NEG should agree on who will finance this part of the operation before planning for the survey proceeds much further. The cost for this component will probably come to \$50,000 if the project uses a U.S. institution or outside consultant.

X. DETAILED WORK PLAN AND BUDGET

Field work for the survey will cover 14 months, including one month of training and both the preliminary and the final pre-test of the questionnaire. It could begin anytime after the Research and Information specialist arrives in country and has a chance to review the studies already completed. For this reason, the work plan specifies responsibilities and lapsed time rather than dates.

The first step is to give CEPLANUT a copy of this report and ask for a written statement of interest or disinterest in executing the kind of survey operation described herein. The Project Officer can give CEPLANUT an idea of when the R&I technical assistant would be arriving in country and what a likely starting date would be. CEPLANUT should reply with its own proposal for collaborating in this endeavor, stating which resources it could provide and which it would need to contract. Assuming CEPLANUT agrees to conduct the survey, the project would issue a contract, being careful to provide for review and revision once the R&I technical assistant comes on the scene.

The next step is to order four new vehicles and four IBM XTs for the project to loan to whomever executes the survey. CEPLANUT would need only two XTs if it conducts the survey since it already has two IBM PCs on order. CEPLANUT's vehicle situation is less

naires and maintain survey discipline. It will organize data entry operations in Kikwit and see that completed questionnaires are brought to Kikwit at the end of the week during which they are administered. It will maintain adequate staff on data entry to ensure that it can enter and edit all data in its possession before the next weekly shipment of questionnaires arrives from the field. Three full-time coders /data entry technicians should be sufficient for this. It will maintain ongoing quality control in the form of a weekly analysis of variance of key variables by enumerator and survey team. This information will be fed to the research coordinator and the field supervisor each week to assist with supervision. Ideally, an NEG consultant would monitor data collection operations through one or two short-term visits during the actual course of data collection.

As soon as edited data becomes available during the first month of the survey, the CEPLANUT systems analyst assigned to the project will begin running tabulations for the analysis tables using the accumulated data. These tables should be updated at the end of each month as more data become available. The systems analyst, in conjunction with the research coordinator, should maintain a system for reporting these data. The NEG consultant could assist the systems analyst to set this system in motion during the pretesting and training phase. He could also review its operation when making his monitoring visits.

Up to this stage CEPLANUT will be providing tables and limited analysis of the data. Once data collection operations, editing, and tabulation are complete, CEPLANUT will make available a copy of the data set to the institution or individual responsible for conducting the consumption analysis. CEPLANUT, itself, will report on the rest of the data.

It is still too soon to come up with a definitive budget for the survey. The potential NEG contribution for short term consultants is an unknown which cannot be resolved at this time. If CEPLANUT agrees to do the study the line item for computers would be smaller. The budget in Table 2 is, nonetheless,

TABLE 2

BUDGET FOR PROJECT 102 CONSUMPTION SURVEY

| | Amount | | Source of Finance |
|--|---------|-----------|-------------------------|
| | Dollars | Zaires | |
| A. Salaries and Supplements | | | |
| 1 Research Director (2pm @ \$12,500/mo) | 25,000 | | 079 |
| 1 Research Coordinator (6 pm @ 10,000 Z/mo) | | 60,000 | 102 |
| 1 Field Research Supervisor (7 pm @ 8,500 Z/mo) | | 59,500 | 102 |
| 3 Field Enumeration Supervisors (42 pm @ 8,000 Z/mo) | | 336,000 | 102 |
| 4 Field Service Chauffeurs (52 pm @ 5,000 Z/mo) | | 260,000 | 102 |
| 12 Enumerators (156 pm @ 4,500 Z/mo) | | 702,000 | 102 |
| 1 Systems Analyst/Programmer (6 pm @ 8,000 Z/mo) | | 48,000 | 102 |
| 3 Data Entry/Coding /Personnel (48 pm @ 4,500 Z/mo) | | 216,000 | 102 |
| Sub-total | 25,000 | 1,681,500 | |
| B. Per Diem and Displacement Allowances: | | | |
| Research Director (30 days @ \$60/day) | 1,800 | | 102 |
| Research Coordinator (60 days @ 600z/day) | | 36,000 | 102 |
| Field Research Supervisor (150 days @ 600z/day) | | 90,000 | 102 |
| Field Enumeration Supervisors (850 days @ 500z/day) | | 425,000 | 102 |
| Enumerators (3500 days @ 350z/day) | | 1,225,000 | 102 |
| Consultants (in-country) (30 days @ \$60/day) | 1,800 | 600,000 | 102 |
| Sub-total | 3,600 | 2,376,000 | |
| C. Logistics Support: | | | |
| Office Rent-Bulungu & Sedzo (13 mo. @ 5000 z/mo) | | 65,000 | 102 |
| Fuel (4 veh. @ 25,000 km ea @ 17 l/100 km @ 35Z/lit.) | | 595,000 | 102 |
| Vehicle maintenance, Repairs & Insurance (60% of fuel) | | 357,000 | 102 |
| Office Supplies, paper, printing questionnaires | | 200,000 | 102 |
| Publication of Reports (250 @ 800 z/copy) | | 200,000 | 102 |
| Sub-total | | 1,417,000 | |
| D. Equipment And Software: | | | |
| 4 All terrain vehicles (\$23,000 ea.) | 92,000 | | 102 |
| 4 IBM PC XT micro computers (\$10,000 ea.) | 40,000 | | 102 |
| Misc. Field Research Equipment (Subsector) | | 125,000 | 102 |
| Software (two years) | 10,000 | | |
| Sub-total | 142,000 | 125,000 | |
| E. Consultants and Technical Assistance: | | | |
| Survey Consultants (3 pm @ \$15,000/mo) (1) | 45,000 | | NEG |
| Consumption Analysis Sub-Contract (2) | 50,000 | | 102 |
| In country consultants (3pm @ 175,000 Z/mo) | | 525,000 | |
| Sub-total | 95,000 | 525,000 | |
| F. Travel and Training: | | | |
| Programmer/Analyst (2 pm @ \$5000/mo) (3) | 10,000 | | 102 |
| Totals | 275,600 | 6,124,500 | |
| Contingencies (10%) | 27,560 | 612,450 | 102 |
| Grand Total | 303,160 | 6,736,950 | |
| Total Cost (@ 55Z/\$ Avg) | 425,650 | | |
| Amount Financed by Project 102 | 355,650 | | |
| Excluding Vehicles & Computers | 223,650 | | |

- (1) Assuming six weeks at questionnaire pretesting/enumerator training time, one trip after the first quarter's data is collected and one trip at the end of the survey, each of 3 weeks duration.
- (2) If IRES can do this, the cost would be about one half this amount.
- (3) If the Apple IIe's are used, this money would finance in-country consultants to assist with setting up the data management system. If CEPLANUT obtains a data management technical assistant, this expense would be covered by project 079 instead of 102.

If the project accepts the more modest objectives of a one-shot survey, the total cost would be around one-half of the full survey costs if enumerators are used and one third if the principal researchers do the interviewing themselves, assisted, of course, by local translators/facilitators.

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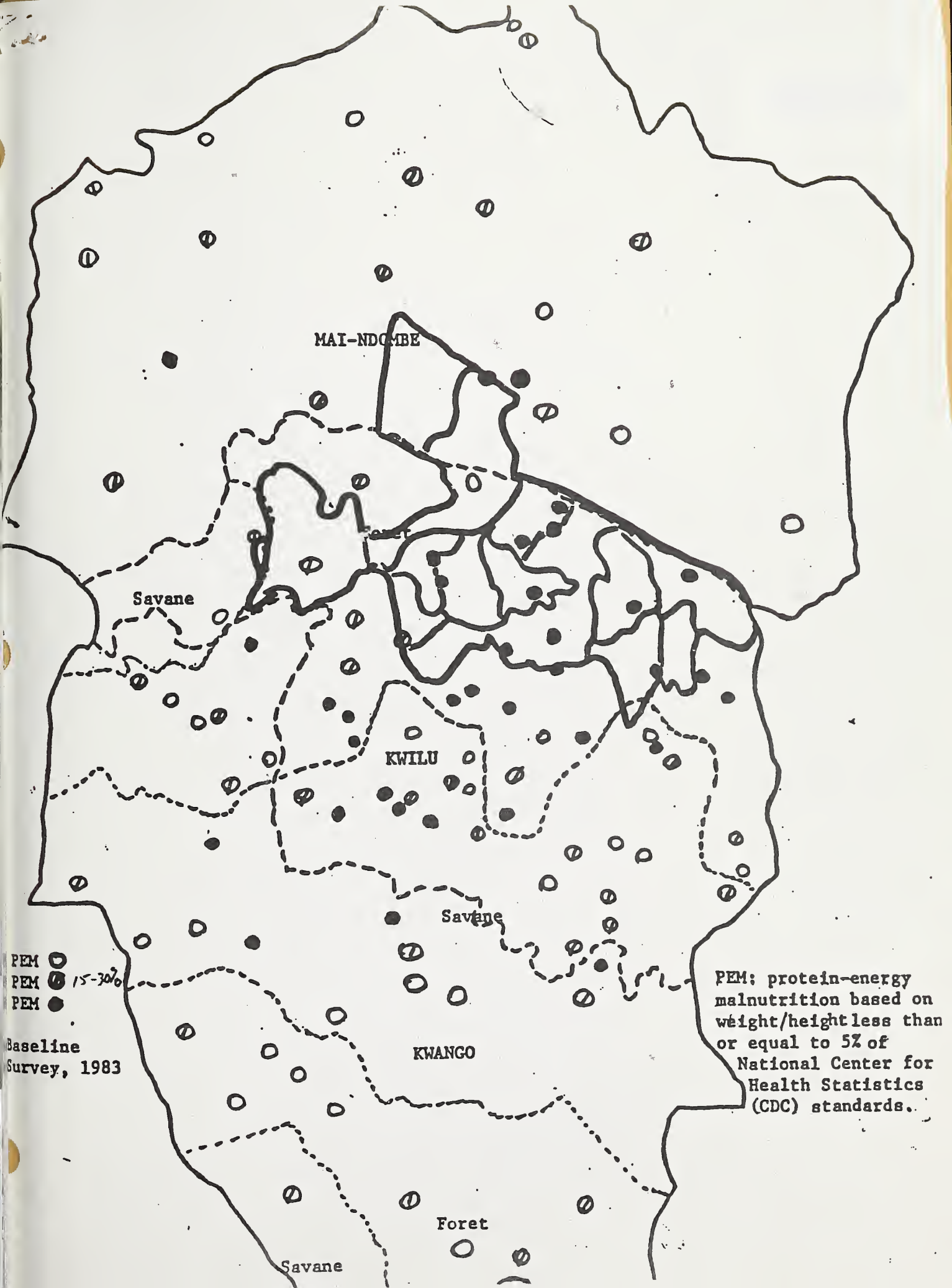
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